

### REMARKS/ARGUMENTS

The final Office Action dated May 14, 2010, has been carefully reviewed and the following remarks are responsive thereto. Claims 1, 6, 12, and 16 have been amended by incorporating the features of claims 2, 7, 13, and 17, correspondingly. Consequently, Claims 2, 7, 13, and 17 have been cancelled.

No new matter has been added.

Other Claims remain pending upon entry of the present amendment. Reconsideration and allowance are respectfully requested.

#### Claim Rejections under 35 U.S.C. § 102

The Office rejected claims 1-3, 5, 16-18 & 20-21 under 35 U.S.C. 102(e) as being anticipated by Li (US Publication No. 2006/0182119 A1, hereafter referred as "Li"). The applicant respectfully submits the following reasons.

To anticipate a claim, a single reference must disclose each feature of that claim.

##### **As per Claim 1:**

Amended Claim 1 defines a method for realizing QoS guarantee in a MPLS network having a number of edge routers, the method comprises: creating an individual QoS resource list in each edge router to record a resource state corresponding to a path; each edge router assigning resources to a user terminal which makes a request based on said QoS resource list and updating the QoS resource list; and wherein the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list.

The applicants respectfully submit that the claimed invention of present independent claim 1 differs substantially from Li, and at least the following feature provided by claim 1 of the present invention is not found in Li:

The feature **"the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list"** is not disclosed in Li.

As claimed, the resource states of the paths from the edge router to **all the other** edge routers in the same domain are recorded in said QoS resource list; in other words, if there are N edge routers in the domain, the resource states of the paths from the edge router to the other N-1 edge routers are saved in the resource list of each router.

With reference to Li, paragraphs 40-44, 100, 172-177, and FIGS. 4 and 5, Li only discloses adding the edge router ID of each passed QoS domain in the edge router list of the resource request message, storing the edge router list in the QoS edge router, and the QoS edge router, which receives a resource allocation message, determining the resource allocation path according to the stored edge router list, transmitting the resource allocation message along the determined resource allocation path, and etc.

From the above, it can be seen that the edge router IDs of each passed QoS domain are stored in the edge router list of Li ; while in the claimed subject matter there are resource states of the paths from the edge router to all the other edge routers in the same domain to be recorded in the QoS resource list of an edge router. The objects recorded in an edge router list of Li and in the resource list of the presently claimed invention respectively, are **completely different**. There is **no evidence in Li** showing that if there are N edge routers in the domain, the resource states of the paths from the edge router to the other N-1 edge routers are recorded in the resource list of each router.

Thus, Li does not disclose the above feature defined in claim 1 of the present invention.

Therefore the Examiner's opinion on the last paragraph of page 15 of the final Office Action, namely, "Regarding claim 2, Li discloses ..... (see paragraphs 100, 172-177 and FIGs. 4 and 5, i.e., each of the edge routers forming a quality of service edge router list, related to resources between source APP1 and destination APP2 paths)", is not shared.

Therefore, contrary to the Examiner's contention, Li does not disclose or even suggest features of claim 1. So, Li cannot provide a basis for a rejection under 35 U.S.C. 102(e).

The distinguishing technical features defined in claim 1 can provide "a decision basis for controlling resource assignment later" (Please refer to lines 6-7 in page 6 of the specification). With the information acquired from the resource states of the paths from the edge router to all the other edge routers in the same domain recorded in the QoS resource list of the edge router, **the whole situation of the resources of paths in a domain in MPLS network can be acknowledged and the assignment of QoS resources can be efficiently improved**. Thus, the problem of providing QoS guarantee is solved by the technical scheme defined in claim 1. In contrast, the edge router IDs of each passed QoS domain stored in the edge router list of Li could **not** provide the resource information of all possibilities of paths in the same domain,

thereby **resulting in an inaccuracy** when establishing reservation paths for aggregate flow between the edges.

References are also made to other prior art documents mentioned in the Office Action:

Rabie discloses a method of bandwidth management in a multiservice connection-oriented network which uses one or more overbooking factors and one or more overbooking models. The method allows an edge node which has received a connection request to accurately determine the bandwidth available on a given link in the network by ensuring that different overbooking models and different overbooking factors are normalized at the edge node.

Kurose discloses that in a data transfer apparatus, a transferring destination information reader reads information of a transferring destination terminal associated with a primary destination terminal based on a communication quality request to the primary destination terminal received from a source terminal. A resource reservation instructor gives instructions for a communication resource reservation for purposes of a communication of the quality to the transferring destination terminal. A resource reserver determines whether or not a communication resource of the transferring destination terminal has been reserved based on the instructions by the resource reservation instructor, and provides a result of the determination thereof to the resource reservation instructor.

Matsubara discloses that for on-demand Quality of Service (QoS) transmission of packets, edge nodes update a TERMINAL-PORT TABLE as terminals log-on and then pass their node ID to each terminal that logged on. The nodes establish Quality of Service (QoS) assured pre-set paths through the WAN with conventional IP routing and accordingly update their NODE-PATH TABLE to provide links between the pre-set paths. From the figures 1 and 4 of Matsubara, the NODE-PATH TABLE only includes the most updated pre-set path.

Therefore, documents Rabie, Kurose and Matsubara are also at least silent on, that the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list.

In summary, the prior art, as a whole, does not suggest or teach the above distinguishing technical features. Applicants respectfully submit that the prior art does not provide any relative teachings for one of ordinary skill in the art to acquire the technical scheme defined in claim 1 over Li with a combination of the above distinguishing technical features and further solves the

technical problem to be solved in the present invention. The applicants respectfully submit that it is **non-obvious** for one of ordinary skill in the art **at the time of the invention** to **modify Li by the existing technology** in the prior art, to solve the problem to be solved in the present invention. Accordingly, claim 1 also conforms to the provisions of 35 U.S.C. 103.

As such, the applicants respectfully submit that claim 1 is in condition for allowance.

**As per Claims 3-5:**

Claims 3-5 are dependent on Claim 1, and are thus allowable for at least the same reasons as Claim 1.

**As per Claim 16:**

Claim 16 is an apparatus implementation of the method claimed in claim 1 and comprises all the elements of claim 1.

As stated above, independent claim 1 complies with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 1 above, Li fails to disclose or suggest each and every element of claim 16. Therefore, claim 16 should be allowed.

**As per Claim 17:**

As stated above, independent claim 16 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 17, which depends on claim 16, is also in conformity with the requirements of novelty and non-obviousness.

**As per Claim 18:**

As stated above, independent claim 16 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 18, which depends on claim 16, is also in conformity with the requirements of novelty and non-obviousness.

**As per Claim 20:**

As stated above, independent claim 16 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 20, which depends on claim 16, is also in conformity with the requirements of novelty and non-obviousness.

**As per Claim 21:**

Claim 21 of the present invention defines an MPLS network for realizing QoS guarantee, the MPLS network comprises the edge router defined in claim 16-20. So, claim 21 comprises all the elements of claims 16-20.

As stated above, claims 16-20 comply with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 16-20 above, Li fails to disclose or suggest each and every element of claim 21. Therefore, claim 21 should be allowed.

**Claim Rejections under 35 U.S.C. § 103**

The Office rejected claims 6-7 & 10-11 under 35 U.S.C. 103(a) as being unpatentable over Li in view of Rabie (US Publication No. 2003/0076829 A1, hereafter referred as "Rabie"). The applicants respectfully disagree for the following reasons.

**As per Claim 6:**

Claim 6 defines a method for establishing a QoS data path in a MPLS network, the method comprises: a user terminal sending a QoS resource request to an ingress edge router; said edge router determining information of a path to an egress edge router of the QoS resource request; said ingress edge router determining whether the resource request is accessed or rejected based on comparing available resources of the requested resources corresponding to the path recorded in said QoS resource list with bandwidth resources requested in said resource request; and when the resource request is determined to be accessed, updating said QoS resource list; and wherein the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list.

Claim 6 is a method for establishing a QoS data path in a MPLS network and comprises all the elements of claim 1.

As stated above, independent claim 1 complies with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 1 above, Li fails to disclose or suggest each and every element of claim 6. Therefore, claim 6 should be allowed.

**As per claim 10:**

Claim 10 is a dependent claim of independent claim 6, and further defines the following additional technical feature: subtracting the bandwidth resources requested in said QoS resource request from the available resources of the corresponding requested resources in said QoS resource list.

This additional technical feature of claim 10 is neither disclosed in Li and Rabie, nor disclosed by the prior art.

In addition, as stated above, independent claim 6 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 10, which depends on claim 6, is also allowable.

**As per claim 11:**

Claim 11 is a dependent claim of independent claim 6, and further defines the following additional technical feature: said QoS resource list at least comprises information of the egress edge router, service class, LSP resources and available resources.

This additional technical feature of claim 11 is neither disclosed in Li and Rabie, nor disclosed by the prior art.

In addition, as stated above, independent claim 6 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 11, which depends on claim 6, is also allowable.

The Office Action rejected claims 12-15 under 35 U.S.C. 103(a) as being unpatentable over Kurose (US Publication No. 2003/0084089 A1, hereafter referred as "Kurose") in view of Li. The applicants respectfully disagree for the following reasons.

**As per claim 12:**

Claim 12 defines a method for terminating QoS data transmission in a MPLS network, the method comprises: an ingress edge router receiving a resource releasing request from a user terminal; said ingress edge router releasing the resources occupied by said user terminal; and said ingress edge router modifying its QoS resource list which records a resource state corresponding to a path; and wherein the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list.

Claim 12 of the present invention is a method for terminating QoS data transmission in a MPLS network and comprises all the elements of claim 1.

As stated above, independent claim 1 complies with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 1 above, Li fails to disclose or suggest each and every element of claim 6. Therefore, claim 6 should be allowed.

**As per claim 14:**

As stated above, independent claim 12 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 14, which depends on claim 12, is also allowable.

**As per claim 15:**

As stated above, independent claim 12 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 15, which depends on claim 12, is also allowable.

The Office rejected claims 4 and 19 under 35 U.S.C. 103(a) as being unpatentable over Li. in view of Matsubara (US Patent No. 7,215,640 B2, hereafter referred as "Matsubara"). The applicants respectfully disagree for the following reasons.

**As per claim 4:**

Claim 4 is dependent on claim 1, and is thus allowable for at least the same reasons as claim 1.

**As per claim 19:**

As stated above, independent claim 16 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 19, which depends on claim 16, is also allowable.

The Office Action rejected claims 8 and 9 under 35 U.S.C. 103(a) as being unpatentable over Li. in view of Rabie and Matsubara. The applicants respectfully disagree for the following reasons.

**As per claim 8:**

Claim 8 is a dependent claim of independent claim 6, and is thus allowable for at least the same reasons as claim 6.

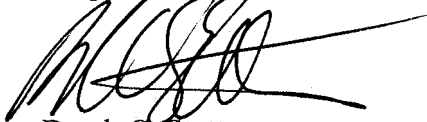
**As per claim 9:**

As stated above, claim 8 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 9, which depends on claim 8, is also allowable.

**Conclusion**

In view of the above, entry of the present Amendment and allowance of the pending claims are respectfully requested. If the Office has any questions regarding this Amendment, the Office is requested to contact the undersigned.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Derek C. Stettner', with a long horizontal line extending to the right.

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